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EXAMINER	
SHEEHAN, JOHN P	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,752	REPPEL, GEORG WERNER	
	Examiner	Art Unit	
	John P. Sheehan	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Interpretation

1. Claim 1, lines 6 and 7 recite "a hard magnetic content greater than 90% by volume **or** foreign phases smaller than 0.5 mm in size, or combinations thereof" (emphasis added by the Examiner). In view of the use of the term "or" (as emphasized in the quoted passage, claim 1 does not require "a hard magnetic content greater than 90% by volume" **and** "foreign phases smaller than 0.5 mm in size".

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 to 5 and 7 to 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al. (Takeshita '374, US Patent No. 5,110,374, cited by the Examiner) in view of Yajima et al. (Yajima '208, US Patent No. 5,049,208, cited by the Examiner).

Takeshita '374 teaches an HDDR process that is encompassed by the HDDR process recited in the instant claims (page 10, lines 24 to 43). Takeshita teaches that the HDDR process produces an anisotropic rare earth-transition metal-boron alloy powder having a recrystallized grain structure containing the $R_2Fe_{14}B$ phase (column 3,

lines 55 to 60) and that this rare earth-transition metal-boron alloy powder is used to make bonded magnets (column 3, lines 48 to 51). Takeshita '374 teaches that the $R_2Fe_{14}B$ phase occupies no less than 50 volume % of the rare earth-transition metal-boron alloy (column 6, lines 3 to 10). Takeshita '374 teaches at least one specific example of the HDDR process having process steps that are encompassed by the claims (column 14, Example 1). Takeshita '374 teaches that the disclosed HDDR process is applicable to rare earth-transition metal-boron alloys containing Fe, Ni or Co as recited in claim 4 and C, O, N and S as recited in claims 5 (column 9, lines 14 to 36). Takeshita '374 teaches that the starting material for the HDDR process is a rare earth-transition metal-boron alloy containing the $R_2Fe_{14}B$ structure (column 6, lines 19 to 36). Thus, the process steps recited in applicants' claims are known.

Yajima '208 teaches a R-TM-B permanent magnet having a tetragonal phase (hard magnetic phase) (Abstract) having a crystal grain size of 0.01 to 3 microns (column 7, lines 41 to 53). Yajima '208 also teaches that the typical R-TM-B permanent magnet has a crystal grain size of 0.01 to 1 micron and about 10 microns (column 2, lines 36 to 61) depending on the method of manufacture. Thus, Yajima '208 teaches that R-TM-B permanent magnets typically have a crystal grain size of less than 10 microns which is encompassed by the grain size of less than 1 mm recited in the instant claims. Yajima '208 also teaches that the product of Yajima '208's process is an anisotropic magnet (column 5, lines 53 to 59). Yajima '208 teaches specific examples wherein the hard magnetic phase is greater than 90% by volume (see Table 1, Example 1 and Table 2 Examples 1 and 2).

The claims and Takeshita '374 differ in that Takeshita '374 is silent as to the crystal grain size of the R-TM-B alloy and the use of magnetic scrap.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because Yajima '208 teaches that the typical R-TM-B magnet has a crystal grain size of less than 10 micron. In view of this, it would be expected that the R-TM-B alloys taught by Takeshita '374 would have crystal grain sizes of 10 microns or less which is encompassed by the crystal grain size of less 1 mm recited in claim 1. Regarding the use of scrap magnetic material it is the Examiner's position that as set forth above under the heading, "Claim Interpretation" the instant claims are not directed to a method wherein the staring material of the method is magnetic scrap material.

4. Claims 1 to 5 and 7 to 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al. (Takeshita '374, US Patent No. 5,110,374, cited by the Examiner) in view of either Kim (Kim '020, US Patent No. 5,091,020, cited in the IDS submitted May 18, 2005) or Kaneko et al. (Kaneko '861, US Patent No. 6,149861, cited by the Examiner) further in view of Yajima et al. (Yajima '208, US Patent No. 5,049,208, cited by the Examiner).

Takeshita '374 teaches an HDDR process that is encompassed by the HDDR process recited in the instant claims (page 10, lines 24 to 43). Takeshita teaches that the HDDR process produces an anisotropic rare earth-transition metal-boron alloy powder having a recrystallized grain structure containing the $R_2Fe_{14}B$ phase (column 3,

lines 55 to 60) and that this rare earth-transition metal-boron alloy powder is used to make bonded magnets (column 3, lines 48 to 51). Takeshita '374 teaches that the $R_2Fe_{14}B$ phase occupies no less than 50 volume % of the rare earth-transition metal-boron alloy (column 6, lines 3 to 10). Takeshita '374 teaches at least one specific example of the HDDR process having process steps that are encompassed by the claims (column 14, Example 1). Takeshita '374 teaches that the disclosed HDDR process is applicable to rare earth-transition metal-boron alloys containing Fe, Ni or Co as recited in claim 4 and C, O, N and S as recited in claims 5 (column 9, lines 14 to 36). Takeshita '374 teaches that the starting material for the HDDR process is a rare earth-transition metal-boron alloy containing the $R_2Fe_{14}B$ structure (column 6, lines 19 to 36). Thus, the process steps recited in applicants' claims are known.

Kim '020 and Kaneko '861 each teach the concept of recycling scrap and or scrap sintered $R_2Fe_{14}B$ rare earth-transition metal-boron alloy (Abstract of each) and that the recycled rare earth-transition metal-boron alloy is used in place of new rare earth-transition metal-boron alloy powder (Kim '020, column 1, lines 60 to 64 and Kaneko '861, column 2, lines 14 to 28) as recited in claims 1 and 2. Kaneko '861 also teaches that the concept of recycling rare earth-transition metal-boron alloy is motivated by economics and environmental concerns (column 2, lines 14 to 28). Thus, the concept of recycling rare earth-transition metal-boron alloy is well known.

Yajima '208 teaches a R-TM-B permanent magnet having a tetragonal phase (hard magnetic phase) (Abstract) having a crystal grain size of 0.01 to 3 microns (column 7, lines 41 to 53). Yajima '208 also teaches that the typical R-TM-B permanent

magnet has a crystal grain size of 0.01 to 1 micron and about 10 microns (column 2, lines 36 to 61) depending on the method of manufacture. Thus, Yajima ‘208 teaches that R-TM-B permanent magnets typically have a crystal grain size of less than 10 microns which is encompassed by the grain size of less than 1 mm recited in the instant claims. Yajima ‘208 also teaches that the product of Yajima ‘208’s process is an anisotropic magnet (column 5, lines 53 to 59). Yajima ‘208 teaches specific examples wherein the hard magnetic phase is greater than 90% by volume (see Table 1, Example 1 and Table 2 Examples 1 and 2).

The claims and Takeshita '374 differ in that Takeshita '374 teaches the use of new rare earth-transition metal-boron alloy in the disclosed HDDR process and not scrap rare earth-transition metal-boron alloy as recited in the claims. Further, Takeshita '374, Kim ‘020 and Kaneko ‘861 are each silent as to the crystal grain size of the R-TM-B alloy.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because such a person would have been motivated to substitute scrap rare earth-transition metal-boron alloy for the new rare earth-transition metal-boron alloy as the starting material in Takeshita '374’s process for economic and environmental reasons as taught by each of Kim ‘020 and Kaneko ‘861. The results of such a substitution are reasonably predictable.

Regarding the grain size, Yajima ‘208 teaches that the typical R-TM-B magnet has a crystal grain size of less than 10 micron. In view of this it would be expected that the R-TM-B alloys taught by each of Takeshita '374, Kim 020 and Kaneko '861 would

have crystal grain sizes of 10 microns or less which is encompassed by the crystal grain size of less 1 mm recited in claim 1.

Response to Arguments

5. Applicant's arguments filed September 9, 2009 have been fully considered but they are not persuasive.

Applicants' argument that the properties that Yajima discloses relate to Yajima's final magnet product and that Yajima does not disclose that the alloy used by Yajima possesses the properties recited in applicants' claims. The Examiner is not persuaded. It is noted that applicants have not elaborated on which specific claimed properties applicants are referring to in making this argument. Applicants' claims encompass the use of any rare earth-transition metal-boron anisotropic magnet material including rare earth-transition metal-boron anisotropic magnet material including Yajima's final magnet product. Thus, applicants' claims encompass the use of such materials as taught by Yajima including scraps of such materials, that is, the starting material of applicants' claimed process encompasses the finish product taught by Yajima. Finally, it is noted that the Examiner has relied on Yajima only for Yajima's teaching that it is well known that rare earth-transition-boron anisotropic magnetic materials have crystal grain sizes of less than 10 microns which is encompassed by the grain size of less than 1 mm recited in the instant claims and Yajima's teaching that such material has a hard magnetic phase content of greater than 90% by volume (see Table 1, Example 1 and

Table 2 Examples 1 and 2), that is, that these limitations recited in applicants' claims are well known.

Applicants' argument that there is no reason to assume that a rare earth-iron-boron material used for making a powder according to Takeshita should have the properties of a product obtained by Yajima's method is not persuasive. The rejection based on the combination of Takeshita in view of Yajima is not based on the assumption that that a rare earth-iron-boron used for making a powder according to Takeshita should have the properties of a product obtained by Yajima's method. Instead, as set forth in the statement of the rejection, the rejection based on the combination of Takeshita in view of Yajima is based on the fact that Yajima '208 teaches that the typical R-TM-B magnet has a crystal grain size of less than 10 micron which is encompassed by the crystal grain size of less 1 mm recited in claim 1.

6. Finally, it is noted that applicants have presented arguments against Takeshita and Yajima individually, however, one cannot show nonobviousness by attacking references individually where the rejections, as here, are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

7. Applicants' arguments regarding the fact that Kim and Kaneko reduce the particles size of the rare earth-transition metal-boron magnetic material are not persuasive. Applicants' claims recite a method "comprising". The use of the open transitional phrase "comprising" does not preclude the particle size reduction step taught by Kim and Kaneko.

> The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., >*Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004)

See MPEP 2111.03

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (7:30-5:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/
Primary Examiner, Art Unit 1793